

## CLAIMS

1. A reference standard for calibration of an analysis instrument, said reference standard comprising a solid body formed of a number of compounds and a substrate having scattering properties similar to a product to be analyzed with said analysis instrument and being spectrally neutral in a wavelength range to be used in the analysis instrument, wherein the substrate and the compounds in combination, with respect to intensity, wavelength and scattering properties, imitate the spectral response of the product to be analyzed with said analysis instrument.
- 15 2. The reference standard according to claim 1, wherein a compound imitates the spectral response of a physical property of the product to be analyzed, which physical property is one in the group of moisture, protein content, fat content, oil content, optical density, fiber content, starch content, sugar content and wavelength markers.
- 20 3. The reference standard according to claim 1 or 2, wherein at least one of the compounds is inorganic.
- 25 4. The reference standard according to claim 1, wherein said substrate is a fluorinated substrate.
- 30 5. The reference standard according to claim 1, wherein said substrate is polytetrafluoroethylene (PTFE).
6. The reference standard according to claim 1 or 2, wherein the compounds in the solid body are homogeneously distributed within the solid body.

7. The reference standard according to claim 1,  
wherein said substrate is spectrally neutral in the  
visible and near infrared region.

5       8. The reference standard according to claim 1,  
wherein the product to be analyzed is one in the group of  
feed, forage, grain, flour, meal, protein extracts,  
derived agricultural products, sugar, sweeteners, meat  
and dairy products.

10      9. The reference standard according to claim 1,  
wherein the product to be analyzed is a pharmaceutical.

15      10. A method for calibration of an analysis  
instrument, said method comprising  
recording, by means of said analysis instrument, the  
spectral response of a reference standard comprising a  
solid body, which with respect to intensity, wavelength  
and scattering properties imitates the spectral response  
20      of a product to be analyzed with said analysis  
instrument,

evaluating the differences between the spectral  
response from said analysis instrument and an expected  
spectral response,

25      calibrating said analysis instrument according to  
the result of the evaluation.

30      11. The method according to claim 10, wherein the  
expected spectral response is obtained by recording, by  
means of a reference instrument, the spectral response of  
said reference standard.

12. Method according to claim 11, wherein the  
reference instrument is a master instrument.

35      13. Method according to claim 11, wherein the  
analysis and reference instruments are spectrometers.

14. The method according to claim 10, wherein recording comprises irradiating said reference standard with electromagnetic radiation and spectrally detecting 5 the electromagnetic radiation which has been transmitted through or reflected from said reference standard.

15. The method according to claim 10, wherein the method further comprises transforming the spectral 10 response from the analysis instrument and the expected spectral response into factor space based on the properties of the product to be analyzed on the analysis instrument.

15 16. The method according to claim 10, wherein the evaluating comprises directly comparing the spectral response from said analysis instrument with the expected spectral response.

20 17. The method according to claim 10, wherein the evaluating comprises mathematical prediction of a set of parameters from an equation predicting composition.

25 18. The method according to claim 15, wherein the evaluating comprises comparing the spectral response from said analysis instrument with the expected spectral response in factor space.

30 19. Method according to claim 10, wherein recording comprises irradiating the reference standard with electromagnetic radiation and scanning said radiation over wavelengths within the range of visible and near infrared light.

35 20. Method according to claim 10, wherein recording the spectral response of a reference standard comprises recording the spectral response of a reference standard

that comprises a solid body formed of a number of compounds and a substrate having scattering properties similar to a product to be analyzed with said analysis instrument and being spectrally neutral in a wavelength range to be used in said analysis instrument, wherein the substrate and the compounds in combination with respect to intensity, wavelength and scattering properties imitate the spectral response of a product to be analyzed with said analysis instrument.